Characterization of pavement texture by use of surface profiles - Part 5: Determination of megatexture (ISO 13473-5:2025, Corrected version 2025-06)

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 13473-5:2025 sisaldab Euroopa standardi EN ISO 13473-5:2025 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 13473-5:2025 consists of the English text of the European standard EN ISO 13473-5:2025.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 19.03.2025.	Date of Availability of the European standard is 19.03.2025.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 17.140.30, 93.080.20

EUROPEAN STANDARD

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English Version

Characterization of pavement texture by use of surface profiles - Part 5: Determination of megatexture (ISO 13473-5:2025, Corrected version 2025-06)

Caractérisation de la texture d'un revêtement de chaussée à partir de relevés de profils de la surface - Partie 5: Détermination de la mégatexture (ISO 13473-5:2025, Version corrigée 2025-06)

Charakterisierung der Textur von Fahrbahnbelägen unter Verwendung von Oberflächenprofilen - Teil 5: Bestimmung der Megatextur (ISO 13473-5:2025, korrigierte Fassung 2025-06)

This European Standard was approved by CEN on 13 March 2025.

This European Standard was corrected and reissued by the CEN-CENELEC Management Centre on 02 July 2025.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN ISO 13473-5:2025 E

European foreword

This document (EN ISO 13473-5:2025) has been prepared by Technical Committee ISO/TC 43 "Acoustics" in collaboration with Technical Committee CEN/TC 227 “Road materials” the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2025, and conflicting national standards shall be withdrawn at the latest by September 2025.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 13473-5:2009.

Any feedback and questions on this document should be directed to the users’ national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Endorsement notice

The text of ISO 13473-5:2025, Corrected version 2025-06 has been approved by CEN as EN ISO 13473-5:2025 without any modification.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 43, *Acoustics*, Subcommittee SC 1, *Noise*.

This second edition cancels and replaces the first edition (ISO 13473-5:2009), which has been technically revised.

The main changes are as follows:

— default measure RMS_{Me} in mm instead of L_{Me} in dB;

— use the same pre-processing procedures as in ISO 13473-1 (drop-out and spikes);

— use digital filters to calculate megatexture, earlier done by spectral analysis;

— improvements of the uncertainty description of megatexture calculations;

— informative annex with reference program and reference calculations, available at the www.erpug.org homepage.

A list of all parts in the ISO 13473 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

This corrected version of l'ISO 13473-5:2025 incorporates the following correction:

— correction of the first formula in Note 3 to entry of term 3.3.5.

Introduction

Pavement surface texture largely influences factors such as noise emission caused by tyre/road interaction (see Reference [1]), tyre/pavement friction (see Reference [2]), and comfort, as well as rolling resistance (see Reference [3]) and wear of tyres. Reliable methods of measuring and characterizing texture are therefore essential. Texture is subdivided into micro-, macro- and megatexture according to ISO 13473-2. A method for measurement and calculation of a macrotexture indicator based on a profile measurement is specified in ISO 13473-1[4]. A procedure for measuring macrotexture by the volumetric patch method is described in EN 13036-1[5]. Currently, no reliable and practical method of measuring pavement microtexture in situ is available. This document aims to provide means of measuring and calculating a megatexture indicator useful for pavement surface characterization.

Megatexture is an important texture range lying between macrotexture and unevenness. This type of texture has wavelengths of the same order of magnitude as a tyre/road interface and is often a result of potholes or 'washboarding'. Some common types of singularities, such as a single depressed (e.g. a pothole) or protruding (e.g. caused by tree roots) spot on the pavement, will also show up in a texture profile spectrum as megatexture. Although some pavements, such as paving stones, possess an intrinsic megatexture, it is usually an unwanted characteristic resulting from defects in the surface. Megatexture is an undesirable feature, the higher the value, the worse the road is perceived: megatexture is known to increase tyre/road noise by inducing tyre vibrations. At the same time, these tyre vibrations cause energy dissipation in the tyre. The rolling resistance increases and this leads to highly unwanted fuel consumption and CO_2 emission (see also 3.2).

Characterization of pavement texture by use of surface profiles —

Part 5: Determination of megatexture

1 Scope

This document specifies a procedure for determining the magnitude of pavement surface megatexture by measuring the surface profile and calculating a megatexture descriptor from this profile. The technique is designed to give meaningful and accurate measurements and descriptions of pavement megatexture for various purposes, such as for the prediction of the acoustic quality of the pavement or the assessment of the rolling resistance.

Since there is an overlap between megatexture and the surrounding ranges, megatexture descriptors unavoidably have a certain correlation with corresponding measures in those ranges. This document specifies measurements and procedures which are in relevant parts compatible with those in ISO 13473-1[4], ISO 8608[6] and EN 13036-5[7].

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 13473-2, *Characterization of pavement texture by use of surface profiles — Part 2: Terminology and basic requirements related to pavement texture profile analysis*

ISO 13473-3, *Characterization of pavement texture by use of surface profiles — Part 3: Specification and classification of profilometers*

ISO/PAS 13473-6, *Characterization of pavement texture by use of surface profiles — Part 6: Verification of the performance of laser profilometers used for pavement texture measurements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 13473-2 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1 General terms

3.1.1
texture wavelength
λ
quantity describing the horizontal dimension of the irregularities of a *texture profile* (3.1.3)

Note 1 to entry: Texture wavelength is normally expressed in metres (m) or millimetres (mm).